

# Aerodynamic Forces on Truck Models, Including Two Trucks in Tandem

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## ABSTRACT

The present wind tunnel experiment describes 6-component force and moment data measured for both the cab and the trailer of a simplified model truck. Forces and moments are presented in *coefficient* form. The cab is sufficiently smooth that no flow separation occurs at zero yaw. The trailer has rounded forward vertical edges and sharp upper and lower edges. Both cab and trailer have wheels. The test matrix includes variation of the cab-trailer gap, and the yaw angle between the model plane of symmetry and the axis of the wind tunnel. The yaw angle is meant to account for the presence of an over-the-road side-wind. Cab-trailer gap separation is varied from  $0-1.55 \hat{A}$ , where  $A$  is the frontal cross-sectional area of the trailer. Yaw angle is varied from  $0-16$  degrees.

A second experiment provides drag information for two trucks in tandem with a variable spacing between the trucks. In this case the cab and trailer remain fixed at zero gap, and the separation between the two trucks varies in the range  $0-1.7 \hat{A}$ . Individual truck models are characterized by their measured drag behavior in isolation rather than by their detailed geometry.